

REMARKS

In response to the Examiner's rejection of the claims due to the use of "modified" lignin the claims have been amended to remove the "modified" and only lignin or sodium lignin is utilized in the claims. In order to overcome the Examiner's rejection of the claims as being anticipated by Hedrick (US4650689) the production of ethanol has been deleted from the claims. In order to overcome the Examiner's rejection of the claims as being anticipated by Blount (6,608,184) I would supply a disclaimer if necessary.

In response to the Examiner's rejection of the claims as being anticipated by Blount (4,321,360) I would like to point out that this invention is an improvement over Blount (360) because:

1. This invention utilizes an aqueous solution of sodium hydroxide instead of a melted alkali hydroxide and this avoids the cellulose material from catching on fire when heated.
2. This process requires less alkali metal hydroxide to break down the biomass to carbohydrates.
3. In this process the alkali metal hydroxide is recovered to be reused whereas by the process of Blount (360) an alkali metal salt is formed and is not recovered for reuse.
4. In this process the alkali metal hydroxide is recovered by reacting the alkali metal hydroxide with carbon dioxide to produce alkali metal carbonate and the alkali metal hydroxide is recovered for reuse by reaction the alkali metal carbonate with lime to produce alkali metal hydroxide and calcium carbonate.
5. The lime and carbon dioxide are recovered for reuse by heating the calcium carbonate

in a lime kiln.

6. The recover of the alkali metal hydroxide, carbon dioxide and lime for reuse greatly reduces the cost of producing the carbohydrates compared to the method of Blount (360).

I would like to point out that Hedrick (689) uses an entirely different process to produce ethanol from cellulose. He uses a mineral acid gases to depolymerize the cellulose material which is then fermented to produce ethanol. This invention utilizes an alkali metal hydroxide to break down cellulosic material into carbohydrates and the production of ethanol has been removed from the claims.

This invention is different from Blount (184) because it may utilize cellulose material containing lignin whereas Blount (184) does not utilize cellulose material containing lignin. Additional steps are utilized to separate the lignin from the cellulose and carbohydrates.

Claims 4, 10, 14 and 15 have been canceled. The claims have amended to overcome the Examiner's rejection of the claims. I request that the claims be approved.

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